REMARKS

INTRODUCTION:

Claims 2, 8-10, 18, 24-25 and 29 are objected to as being dependent on a rejected base claim, but would be allowable if suitably rewritten in independent form.

Claims 1-33 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 1, 3, 5-7, 11, 13-17, 19, 20-23, 26-28, 30-33 are rejected under 35 U.S.C. § 102(b) as being anticipated by Griffin et al. (USPN 5,52,244).

Claims 4 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Griffin et al (USPN 5,552,244), and further in view of Omaru (USPN 5,437,945).

These rejections are respectfully traversed.

In accordance with the foregoing, claims 1, 2, 9-13, 17-19, 22-23, and 27-29 have been amended, and new claims 34-39 have been added. No new matter has been added.

Claims 1-39 are pending and under consideration.

Reconsideration is requested.

REJECTION UNDER 35 U.S.C. § 112:

In the Office Action, at pages 2-3, claims 1-33 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite due to the terminology "high" in "high dielectric constant." It is respectfully submitted that the terminology "high dielectric constant" is clear to those skilled in the art with respect to lithium batteries. For example, USPN 6,613,475, col. 7, line 60-col. 8, line 3, states: "The type of the non-aqueous solvent used for dissolving the supporting electrolyte is not restricted, but a solvent of a relatively high dielectric constant is preferably used. Examples of such solvents include cyclic carbonates such as ethylene carbonate and propylene carbonate, non-cyclic carbonates such as dimethyl carbonate, diethyl carbonate and ethyl methyl carbonate, blymes such as tetrahydrofuran, 2-methyl tetrachdrofuran and dimethoxyethane, lactones such as γ-butyrolactone, surfur compounds such as sulforane, and nitrites such as acetonitrile. Mixtures of these solvents are also usable." Thus, since the specification specifies that a solvent with a high dielectric constant is needed and lists ethylene carbonate, propylene carbonate, γ-butyrolactone and sulforane as suitable high dielectric solvents (see paragraph 24, page 6 of the specification), such information is not indefinite to those skilled in the art.

In addition, in accordance with the general acceptance of the usage of "high dielectric constant", it should be noted that, in a search of the patent database from 1976 to present for the

terminology "high dielectric constant" in claims, 700 patents were found (see attachment, which itemizes the first 50 such patents and lists a total of 700 patents containing such language in the claims).

Similarly, it is respectfully submitted that the terminology "high viscosity" is clear to one skilled in the art. In a search of the patent database from 1976 to present for the terminology "high viscosity" in claims, 1110 patents were found (see attachment, which itemizes the first 50 such patents and lists a total of 1110 patents containing such language in the claims).

Thus, it is respectfully submitted that, in the context utilized in the specification and claims of the present invention, the terminology "high", when used with dielectric constant and viscosity, is clear to those skilled in the art.

Thus, the concerns about the terminology "high" with respect to the dielectric constant and viscosity are now believed to be moot, and claims 1-33 are now deemed to be in allowable form under 35 U.S.C. § 112, second paragraph.

REJECTION UNDER 35 U.S.C. § 102:

In the Office Action, at pages 3-4, claims 1, 3, 5-7, 11, 13-17, 19, 20-23, 26-28, 30-33 are rejected under 35 U.S.C. § 102(b) as being anticipated by Griffin et al. (USPN 5,552,244; hereafter, Griffin).

These rejections are traversed and reconsideration is requested.

It is respectfully submitted that Griffin teaches utilizing a polar solvent such as water to prepare an electrolyte for a battery (see abstract and col. 4, line 65-col. 5, line 3). In fact, water, is listed as achieving optimal performance. In contrast, the present invention utilizes three solvents: a first solvent, a second solvent, and a third solvent. The solvents are selected on the basis of the solubility of sulfur in same. It is well known to those skilled in the art that sulfur is insoluble in water. Thus, as may be seen from the 24 solvents in which the solubility of sulfur was measured for prospective use in the present invention, water is not listed. All 24 solvents are organic solvents. The first solvent is selected by selecting a solvent having a sulfur solubility greater than or equal to 20 mM. The second solvent is selected by selecting a solvent having less than 20 mM (the examples in paragraph 21 have a sulfur solubility of 0.8 to 7.8 mM. The third solvent has a high dielectric constant and a high viscosity (is very viscous and has a high polarity - see paragraph 28).

In contrast, Griffin et al. teaches "an electrolyte comprising particles of a cation chelated resin including a resin substrate having bonded thereto an alkyl sulfide compound carrying an agent selected from the group consisting of H_2S, HS^-, S_2^- and mixtures thereof, dispersed in a polar

solvent." See claim 1. Since it is known to those skilled in the art that water is not viscous and that sulfur is not soluble in water, water is not a suitable solvent for the present invention. In addition, the present invention does not utilize a resin in the electrolyte, as is taught by Griffin et al. For further clarity, the independent claims have been amended to recite "a second component solvent with a sulfur solubility less than 20 mM and greater than 0.5 mM."

Thus, it is respectfully submitted that the electrolyte of the present invention is different from the electrolyte of Griffin et al., and is not anticipated by Griffin et al. under 35 U.S.C. § 102(b).

REJECTION UNDER 35 U.S.C. § 103:

Claims 4 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Griffin et al. (USPN 5,552,244), and further in view of Omaru (USPN 5,437,945).

The electrolyte of Griffin et al. is an electrolyte that comprises particles of a cation chelated resin (see above). Griffin et al. teaches that water is a suitable solvent for an electrolyte. In contrast, Omaru does not teach using particles of a cation chelated resin and teaches using a non-aqueous electrolyte comprising two solvents. Working with a resin is different from working simply with solvents. Hence, it cannot simply be assumed that such techniques may be combined. Nevertheless, taken alone or together, Griffin et al. and Omaru do not teach or suggest using the three solvents that are described by the present invention.

Further, it is respectfully submitted that claims 4 and 12 are deemed patentable due at least to their depending from claim 1, which is deemed to be non-obvious in view of Griffin et al. and/or Omaru.

Accordingly, withdrawal of the rejections of claims 4 and 12 is requested.

NEW (ALLOWABLE) CLAIMS:

New claims 34-39 represent claims 2, 8, 18, 24-25 and 29, which have been rewritten in independent form including all the limitations of the base claim and any intervening claims. It is submitted that these new claims distinguish over the prior art and are allowable.

CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance, which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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